Cipher-520 Programmable Terminal

User’ s Guide

Syntech Information Co., Ltd.

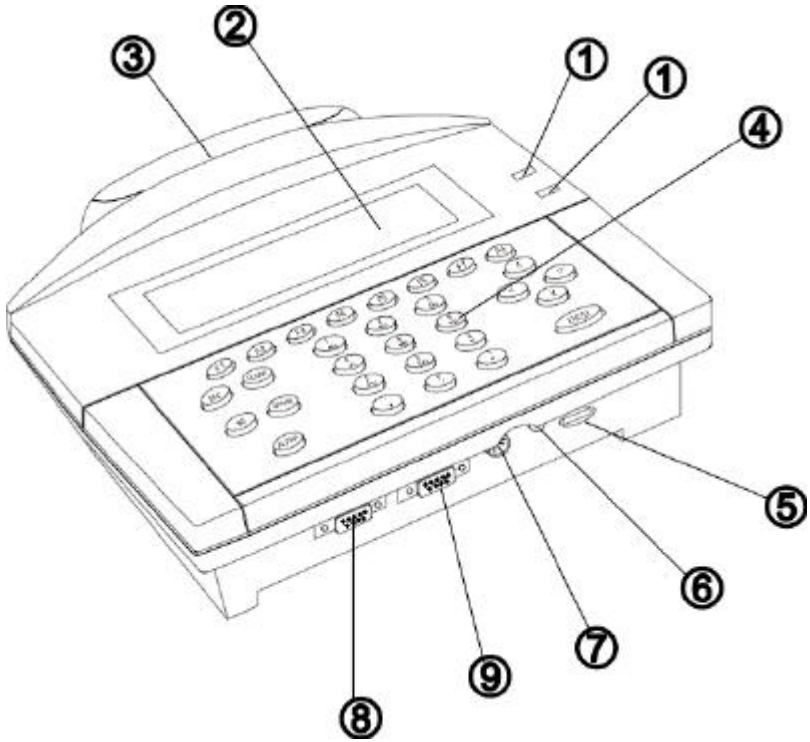
1. Packaging

This pack includes:

(1) This User's Guide
(2) The User’ s Manual Disk
(3) The Cipher-520 main unit
(4) Optional slot reader mounted on the top of Cipher-520 main unit (if ordered)
(5) The backup battery pack (if ordered)
(6) Power Adaptor (110VAC or 220VAC)
(7) Default System Master Card (1234567890)

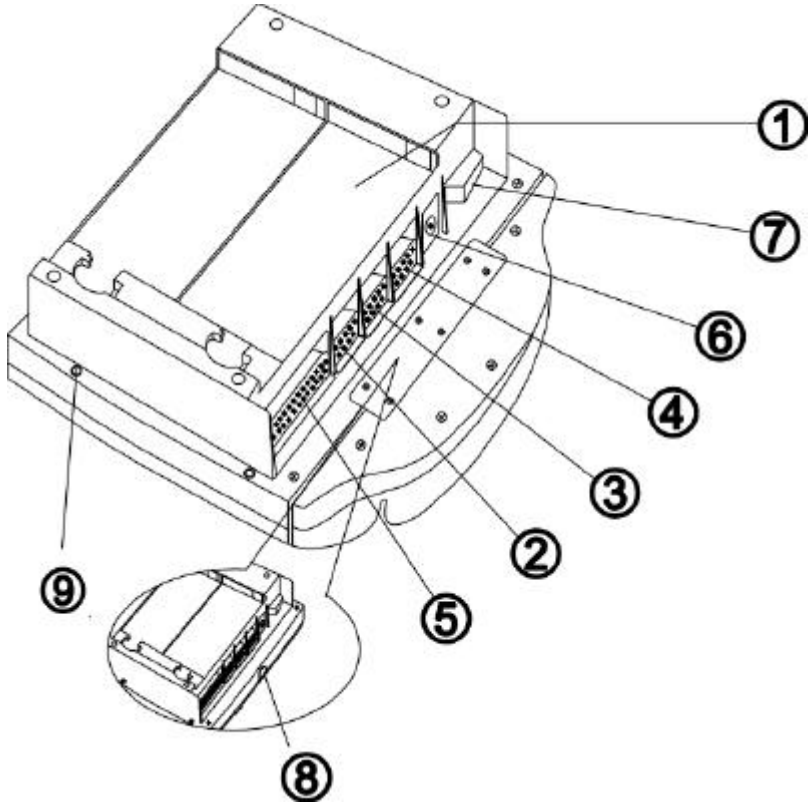
2. Components

2.1. Front View



1. Red and Green LED for status indication
2. LCD display (240 X 64 or 128 X 64)
3. Optional slot-type reader (barcode or magnetic card)
4. Keyboard
5. Volume
6. External ear-phone connector
7. External PC/AT keyboard connector
8. Reader port #1
9. Reader port #2

2.2. Rear View



1. Optional Operational Battery
2. COM1 connector
3. COM2 connector
4. COM3 connector
5. Digital input/output connector
6. External power DC-jack
7. Power switch
8. Through-hole for slot reader cable
9. Table stand mounting hole

3. Installation

3.1. Power Source

The Cipher-520 can be powered from 2 sources: the external +12V or operation backup battery. If main power is down, the 1200 or 1800 mAh NiMH battery pack will provide the system power.

3.2. Reader Ports

These two ports are used to connect an external WAND, barcode slot or up to dual-track magnetic card reader. Note that the **optional slot reader** will occupy reader port #1.

3.3. External Keyboard Port

Besides the built-in keypad, an external PC/AT keyboard can be attached to facilitate data entry.

3.4. COM port

The Cipher-520 provides 3 serial communication ports, namely COM1, COM2 and COM3. For COM1 and COM2, 4 kinds of COM boards (RS232, Half-duplex RS485, Full duplex RS485 or 20mA current loop) can be attached, The most popular configuration is COM1 for RS232 and COM2 for half-duplex RS485. Whereas COM3 has been fixed to RS232.

1. RS-232 Connection

The RS-232 connection between master station and the host computer is normally made through COM3. Besides the pin assignments of the RS232 port, both the hardware and software settings should be checked before any physical connection. Please refer to the User' s Manual for a detail description of these settings.

2. RS485 / 20mA Current Loop Connection

The RS485 / 20mA current loop is used to connect multiple Cipher-520s. The pin assignments should be check before connection.

3.5. Digital Input / Output

The Cipher-520 provides 4 digital input and 4 digital output. An optional DIO board can be used to accommodate various kinds of input/output needs (CMOS or Photo-coupled for input, and CMOS, Open-collector, or Relay for output). Please check the pin assignments description in the User' s Manual before connection.

3.6. Speaker & Earphone

The 520 is equipped with a buzzer as the audio indicator. Its tone is software controllable whereas the volume is to be tuned via a variable resistor. An earphone can be attached which will automatically disable the buzzer.

3.7. Wall-mount shelf/ Table Stand

An optional metal case or table stand can be used if mounting on the wall or table is required.

Wall Mount Shelf Table Stand

4. Programming System Parameters

The Time & Attendance system parameters of the Cipher-520 can be programmed manually or through RS232 commands.

4.1. Manually programming

Power on the Cipher-520 and scan the master card. Now the Cipher-520 is waiting for entry of the password. However, if the password was set to none, this message will not be shown and this step is simply ignored. The system manager must key in the password. If the password is correctly entered, Cipher-520 will be in the System Management mode where 2 major tasks can be done.

1. **Setup**

```
System Manager
1.Setup
```

(1) Press the ENTER key and now the Cipher-520 is in the setup mode and is ready to accept system parameter modifications. The Cipher-520 will show the name of the parameter on the upper side of the display and the original setting value on the lower side.

```
1. Line Connection:
=Master
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(2) Press the ENTER key then you can change the setting value of this parameter. Use the "<" and ">" keys to select a new setting value or type in a new value via the numeric keys. Then press ENTER to conclude the new setting value.

```
1. Line Connection:
-><Single>
```

(3) After all the system parameter modifications are completed, the F1 key must be pressed to update these modifications and save the new settings into the program memory. The system will restart with the new settings. If the F2 key instead of the F1 key is pressed, all modifications of the system parameters will be

discarded and the original settings will be restored.

(4) The following are the system parameters,

a. Line Connection Setting
b. On Line Printing Setting
c. Prefix Code Setting
d. Keyboard Entry Setting
e. Station Lock Setting
f. Station ID Setting
g. Master Card Setting
h. Password Setting
i. Time Setting
j. Timer Fine Tune Setting
k. ID Length Setting
l. Barcode Type Setting
m. COM1 Setting
n. COM3/Aux Device Setting
o. Alarm Table Setting
p. Workshift Table Setting
q. LCD Backlight Setting
r. Max Station ID Setting

2. **Init System**

This is used to set all system parameters to their default value and initialize the system files. Care should be taken, as this will destroy all data stored in memory.

4.2. RS-232 Commands

Each communication transaction starts from the host side and ends with an echoed message from the Cipher-520. The carriage return (hex0d) is used as the delimiter/terminator of each command or

message. If any format error occurs, the station would echo a **NAK** message. All these commands are summarized in the following table.

1. ***Data Management Commands:*** To manipulate the ID entry data stored in the Cipher-520.

Format	***Usage***	***Return***
READ	Read 1 record of data	*OVER* : buffer is empty *Kppyymmddhhnnabcq...q* where, K:"K", identifier of 520 yymmddhhnn:date & time a:"0" b:working shift (1-4) c:prefix code (0-9) q...q:employee ID
REMOVE	Remove the record just read	*NEW*:done *OVER*:buffer empty
CLEAR	Initialize memory	*DONE*:done
X	on-line stations inquiry	***aabb..pp*** each 2-digitss represent one station ID
TR	System time	***yymmddhhnn*** yy:year hh:hour mm:month nn:minute dd:day ss:second
TWyymmddhhnn	System time	**yy**:year **hh**:hour **mm**:month **nn**:minute **dd**:day **ss**:second

2. Inquire System Parameter Setting Commands: To get current system parameter settings from the Cipher-520.

Format	***Usage***	***Return***
G01pp	Line connection	00:reserved, 10:slave 01:stand alone,11:master
G03pp	On-line printing	0:disable, 1:enable
G12pp	Barcode symbologies	***ABCDEF*** A:Code 39 B:Code 128

		C:Interleave 25 D:Industrial 25 E:Coda-Bar F:UPC/EAN 0:disable, 1:enable
G13pp	Prefix code	0:disable, 1:enable
G14pp	ID code keyboard entry	0:disable, 1:enable
G18pp	Master card	***nn..nn***, current master card
G19pp	Password	***nn..nn***, current password
NRppnn	Relay output timetable	***Hhmmdd*** nn:entry number from 01 to 16 hh:starting hour mm:starting minute ddd:duration
DRppnn	Automatic shift change timetable	***hhmmxxyyw*** nn:entry number from 01 to 16 hh:starting hour mm:starting minute xx:end hour yy:end minute w:working shift from 1 to 4
FRpp	ID length	**nn**:ID length
VRpp	Get current company code	n..n:current company code

3. Program system Parameter Commands:To program the system parameters of the Cipher-520.

Format	***Usage***	***Parameter***
S01ppnn	Line connection	00:reserved, 10:slave 01:stand alone, 11:master
S03ppn	On-line printing	0:disable, 1:enable
S12ppABCDEF	Barcode symbologies	**A**:Code 39 **B**:Code 128 **C**:Interleave 25

		D:Industrial 25 **E**:Coda-Bar **F**:UPC/EAN 0:disable, 1:enable
S13ppn	Prefix code	0:disable, 1:enable
S14ppn	ID code keyboard entry	0:disable, 1:enable
S18ppnn..nn	Master card	**nn..nn**:master card, up to 20 haracters
S19ppnn..nn	Password	**nn..nn** : password, up to 6 digits
NWppnnhhmmdd	Set relay output timetable	**Nn**:entry number from 01 to 16 **Hh**:starting hour **Mm**:starting minute **Ddd**:duration
Dwppnnhhmmxxyyw	Set automatic shift change timetable	**Nn**:entry number from 01 to 16 **hh**:starting hour **mm**:starting minute **xx**:end hour **yy**:end minute **w**:working shift from 1 to 4
FWppnn	ID length	**nn**:ID length allowed, from 0 to 99
VWppn..n	Set company code	n..n:company code up to 30 characters
Lnpp	Station lock	0:unlock, 1:lock

5. System Menu

Pressing the "F1", "F2" and "F3" keys simultaneously while switching the power on, will enable the user to get into the System Menu.

5.1. Memory Menu

1. Memory Info: displays the amount of Flash, Base and card memory.
2. Test Memory: will test the main memory and the card memory and display s status.
3. Initialize Memory: Initialize the data memory this will clear all memory in the Cipher520.

5.2. Set Time

Time: 1999/03/01 12:00:00
New: __/__/__ __:__:__

Set the system time , as YY/MM/DD hh:mm:ss.

5.3. Reader

Reader 1:
Reader 2:

This is used for testing the reader port. If Reader 1 or Reader 2 read the barcode successfully, it will show as "P, Q13, 1". P is the Barcode type; Q13 means there are 13-digits in the barcode; 1 means scanned once.

5.4. Power

Main Power: 11.914V
Battery:

If Mains Power is connected the display will show the actual voltage. If the unit is powered by batteries only it will display "main power Lost" and show how many batteries are installed.

5.5. Test Menu

1. Buzzer: Buzzer test
2. LCD: LCD will be toggled between on and off for 15 seconds
3. LED: LED test
4. KBD
   (1) Membrane KBD testing

   Each key shows on the display in reversed color. Press each key to become normal, when all keys are pressed the user will be returned to the KBD test menu.

   (2) PC/AT KBD testing

   Connect with an external keyboard and type any key for testing.
5. Digital I/O: Display the state of the digital I/O port; Ok means on, Fail means off.
6. Communication:
   (1) COM1-COM3

   Press ENTER, the display shows the following:

   COM1 RTS..ON/OK OFF/FAIL

   COM3 RTS..ON/OK OFF/FAIL

   (Tests the Request To Send signal of COM1 or COM3 if it is available)

   Txmit from COM1 to COM3..OK/FAIL

   Txmit from COM3 to COM1..OK/FAIL

   (Tests the data transmission between COM1 and COM3)

   (2) COM2-COM3

Similar to the above tests, using COM2 and COM3.

(3) Self Loop-Back

The display will show the interface of COM1, COM2 and COM3 when the special loop back connector is used. (refer to the Cipher-520 Hardware Reference Manual).

5.6. Version

1. Version: Version number.
2. Flash Download: Set the Baud Rate of COM3 (RS232 fixed) for Basic/C program or data download.